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THESIS

FEASIBILITY OF AN ALL-VOLUNTEER ARMED FORCE IN TURKEY
by
Erdogan Kurt
June 2001

Thesis Advisor:	David R. Henderson
Second Reader:	Mark J. Eitelberg

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13. ABSTRACT

Turkey is in the middle of the three most problematic regions of the world. Therefore, it maintains one of the largest militaries in the world. To man such a big army, the conscription system has been used for the last century. However, this study shows that conscription is not the best system for Turkey's defense needs. The most valuable resource of Turkey, manpower, is not efficiently allocated in the defense sector. An all-volunteer force provides an effective defense without additional cost. This study also argues that population growth will force the government to find an alternative to the current universal draft system. To reduce the effect of population growth, the government has been using a selective monetary service in the last two decades. But, this temporary solution cannot survive for a long time.

This study concludes that an all-volunteer force can bring efficiency to the defense department. It can increase the personnel quality and military readiness. ·

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FEASIBILITY OF AN ALL-VOLUNTEER ARMED FORCE IN TURKEY

Erdogan Kurt
1st Lieutenant,Turkish Army
B.A., Turkish Army Military Academy, 1996

Submitted in partial fulfillment of the
requirements for the degree of

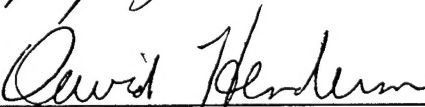**MASTER OF SCIENCE IN INTERNATIONAL RESOURCE PLANNING AND MANAGEMENT**

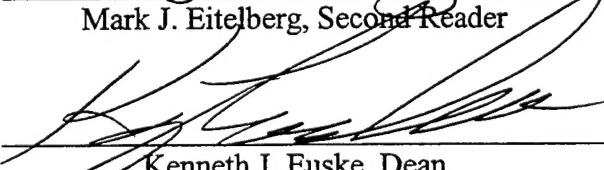from the

**NAVAL POSTGRADUATE SCHOOL
June 2001**

Author: _____
Erdogan Kurt

Approved by: _____
David R. Henderson, Thesis Advisor

_____
Mark J. Eitelberg, Second Reader

_____
Kenneth J. Euske, Dean
Graduate School of Business & Public Policy

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I.   TURKISH DEFENSE NEEDS

A.   INTRODUCTION

Before determining the optimum defense structure, nations should analyze their security environment. National resources would be wasted if there is a gap between the current defense structure and an optimum structure. A weak defense would lead to greater costs in human life while an overfunded defense would deplete economic prosperity. In other words, defense requirements are closely related to the future capabilities of adversaries. However, the problem is that the measurement of defense capability is not as clear as the objectives of a national defense. Therefore, the defense structure will be disaggregated for the analysis in the following chapters.

Turkey is located in the center of three problematic regions of the world: the Caucasus, the Balkans, and the Middle East. Neighboring countries, except for Greece, are either in a transition to democracy or still under some kind of autocratic rule. Moreover, the southern neighbors of Iran, Syria and Iraq, are known as supporters of state-sponsored terrorism. Any perceived weakness in the eyes of these countries would endanger Turkey's security of its southern borders. The relatively stable position of the northeastern neighbors cannot be long lasting if Russian democracy fails, and if they follow pre-cold war expansionist foreign policy. On the western part, the Balkans are a time bomb ready to explode. In this problematic environment, Turkey faces two options. One is to engage in an alliance with the European Union and to continue strong relations with the United States. The second is to have a strong defense capable of deterring any aggression in the absence of support by the allies. Especially after the Cold War, the

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United States' reluctance to give more support and the deterioration of NATO's willingness, left Turkey alone in the region. The strategy of the defense establishment would reveal the optimum force structure and size. When evaluating the geostrategic position of Turkey, Turkey does face a threat directly to its mainland security. Thus, the Turkish Armed Forces should be ready to confront a major attack by a regional power and to deter a second one from another regional power. The Turkish military should have the capability to win one and half aggressions at any time. The definition of deterrence is "to hinder or prevent action by fear or consequence or by difficulty and risk."[1] Taylor argues that deterrence is a psychological phenomenon. A country must convince opponents that attempts to gain their objectives would cost more than it would be worth. Deterrence is the result of three factors:

- Capability: relative balance of quality and quantity of weapon systems and units relative to those of one's adversary
- The willingness of personal to operate and fire weapons. (Morale and operational readiness)
- Credibility of the country in its policies.[2]

Readiness to fight is closely related to equipment, maintenance, training, supply and mobility of the units. However, it would not be wrong to say that manpower issues dominate defense capability. To determine manpower requirements, a bottom-up review is necessary. It is obvious that the wartime requirements and peacetime requirements do not have to be same. The wartime requirements can be figured out by a scenario analysis. The scenario analysis provides:

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[1] Taylor, William J., U.S. Security Requirements: Missions, Manpower, Readiness, Mobilization, and Projection of Forces, in Toward a Consensus on Military Service, Report of the Atlantic Council's Working Group on Military Service, Pergamon Press, (1982).

[2] Ibid, p.64.

- Mix of units

- Tactical doctrine

- Desired firepower

- Number of combat and combat support units[3]

Peacetime requirements would be a product of the desired readiness level and budget constraints.

B. DEFENSE ORGANIZATION

The Turkish defense structure consists of three forces closely associated under the command of the Joint Chiefs of Staff of the Army, Navy and Air Force. The Army is the biggest in size and its budget is traditionally larger. This is based on the adversary's military capabilities and budget constraints on the military. Since labor is cheap relative to capital, more emphasis is placed on the Army. However, an analysis of recent wars would show that the Air Force is becoming more important.

Figure 1 shows the defense manpower structure. The manpower system is classified as civilian and uniformed personnel at the most aggregate level. Civilian personnel are relatively low compared to military personnel. The civilian military substitution is one of the areas that needs further analysis. Studies during the transition to an all-volunteer force in the United States show that only 20 or 30 percent of active duty billets are directly related to combat missions. The remaining positions are required for logistic support, administration, maintenance and training all of which have counterparts in the civilian economy.[4] Civilians who cost less can fill these positions without any considerable effect on military strength. The negative side of civilian substitution,

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[3] White, John P. and Hosek , James R., The Analysis of Military Manpower Issues in Military Service in the United States edited by General Brent Scowcroft, Prentice Hall,(1982),p. 52.

[4] The Report of the President's Commission on an All-Volunteer Armed Force, Collier-Macmillan Ltd.,(1970), p. 44.

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however, is that they cannot be mobilized as easily as uniformed personnel, and they demand more compensation for undesirable rotations. "Defense planners should make a position by position analysis to decide whether a particular position should be military or civilian."[5]
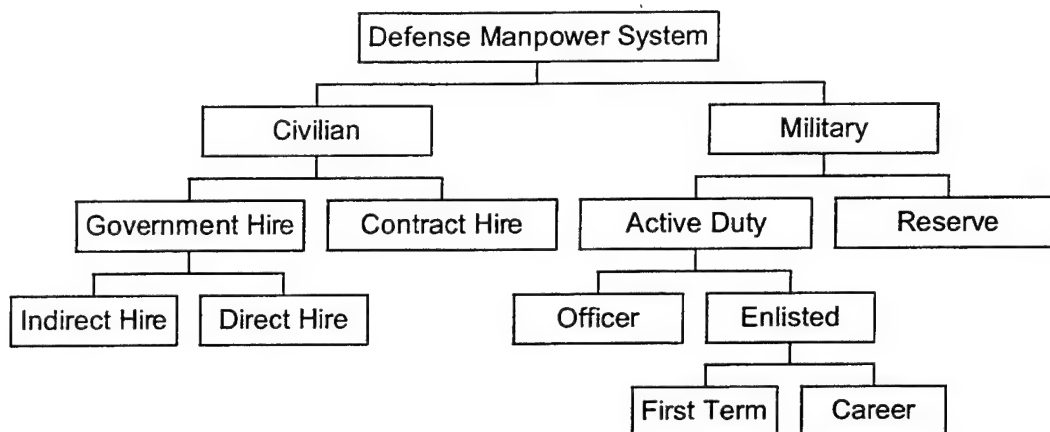
Figure 1.   Defense Manpower Systems.

Source: Richard L.Cooper, "Military Manpower, and the All-Volunteer Force. (Santa Monica, California: Rand, 1977), p. 15.

The main category of the military portion is the officer corps. The strength of the military is directly related to the quality of the officer corps. They possess both management and leadership responsibility[6]. The source of the officer corps is the military academies of the each service. The college graduates can become support officers only but this is also limited. If the college graduates are accepted as combat officers the quality of the officer corps would increase because the eligible pool increases. In the current structure, there is selection for the military academies only. After entering an academy a person would most likely become an officer. To summarize, according to basic economic

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[5] Ibid, p. 36.

[6] Cooper, p. 15

4

rule, competition would bring more efficiency to the services. The termination of the draft does not affect the manning of the officer corps when compared to countries where the draft is a major source of career personnel.

The compensation for the officer corps is designed according to rank. Except for some cash allowances for pilots, considerable compensation benefits do not exist for the specialized officers or for the most difficult jobs. For example, a combat officer, such as infantry, has to work in a difficult job environment and is responsible for maintaining the mission readiness of the unit, while dealing with the psychological and physical challenges of the job. On the other hand, a support officer performs the job in a safe and peaceful environment. However, both officers are compensated equally. In fact, the equity within the ranks results in an inequity between combat officers and non-combat officers.

Although military personnel have in kind allowances and tax advantages, they are not as effective as cash allowances. For example, free housing is available for a limited number of personnel. The personnel who are not living in government houses do not receive any compensation. Other establishments such as morale camps[7] are heavily used by senior officers. The bulk of the officers have little chance to use them. There is no law that prevents the use of these establishments but since rank is the first determinant, practically no junior personnel can use them. Thus, non-cash benefits are not the most effective form of compensation for a large part of the defense. Providing cash benefits

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[7] Morale camps are the military hotels in the coastal cities that only military personnel can use. They are very advantageous in that the government subsidizes them.

instead will enable the personnel to decide how to use it in the optimum way[8]. Finally, regular military compensation (RMC), which includes basic payment and compensation in kind, is lower than the wages of civilian counterparts. Civilian earning opportunities encourage personnel to leave as soon as they complete the mandatory service time and acquire the initial retirement benefits.

The major part of the defense manpower system is enlisted personnel. It is this labor force that the draft or the AVF will mainly affect. In the draft system, enlisted personnel are drafted from the male population at the age of 20. The draftees are not very well paid and are required to serve 18 months. The inefficiencies associated with the draft are a result of the government's intervention in the market. The findings of economists show that whenever there is an intervention in the markets, a social loss, called "deadweight loss", will occur. The draft is no exception. Every young male is obligated to serve. Otherwise, he faces legal punishment, and the chances of finding a job are almost nonexistent if he fails to serve. The college graduates are drafted as second Lieutenants for 18 months. They are substituted for regular officers who graduated from the academies. However, since they are not trained sufficiently, the military's return on this investment is very low. The Gates commission states that:

> Conscription induces the military services to use manpower inefficiently. They make manpower decisions on the basis of the costs they perceive them, namely, those that are reflected in their budget. Because budget expenses significantly understate the cost of first-term servicemen, the services are led to use more of them than they otherwise would. When military compensation is raised to a level consistent with an all-volunteer armed force, the services will find it desirable to economize on manpower. In particular, they will discover ways to substitute non-human resources for manpower in a wide variety of activities. They will find it desirable to

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[8] The Report of the President's Commission on an All-Volunteer Armed Force, p. 62.

mechanize tasks now performed manually, and to emphasize, even more than at present, durability, reliability, and ease of maintenance in the design of equipment and vehicles and in the construction of facilities.[9]

As Cooper noted, to better understand the effect of alternatives to the draft, the focus should be on other defense inputs as well as military personnel. "The variety of resources contribute to the defense mission and can, in many cases, be substituted for one another."[10]

As seen in Figure 2, inputs to the defense mission can be categorized as labor and capital. The substitution of labor versus capital shows the defense organization's capabilities and structure. Generally, in the forces that have offensive capability, the capital to labor ratio is higher than for the defensive forces.

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                    ┌─────────────────────┐
                    │  Military Capability │
                    └─────────────────────┘
                              │
                    ┌─────────────────────┐
                    │  Defense Resources   │
                    └─────────────────────┘
                    ┌─────────┴──────────┐
              ┌──────────┐          ┌──────────┐
              │ Capital  │          │  Labor   │
              └──────────┘          └──────────┘
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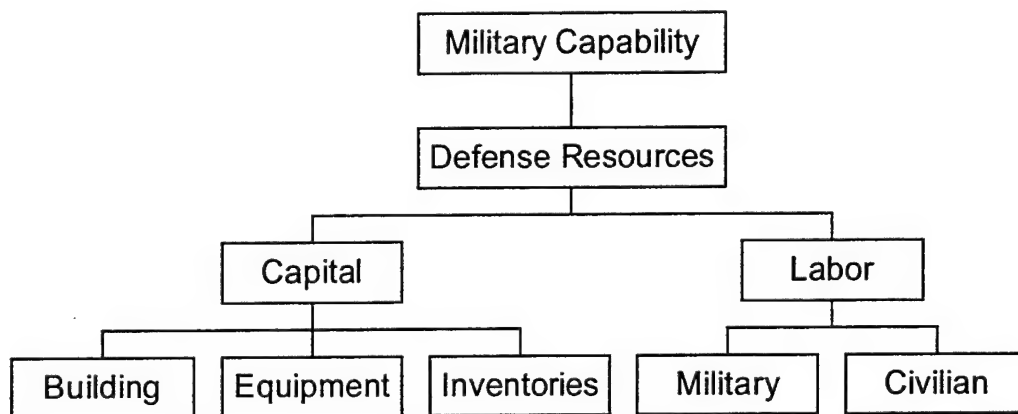
Figure 2.   Defense Resources.

Source: Richard L. Cooper, "Military Manpower, and the All-Volunteer Force. (Santa Monica, California: Rand, 1977), p. 10.

C.   SYSTEM APPROACH TO DEFENSE ORGANIZATION

It can be assumed that a defense organization is an open system. Nadler and Tushman define a system "as a set of interrelated elements--that is, a change in one

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[9] Ibid, p. 30.

[10] Cooper, p. 12.

element affects other elements. An open system is one with its environment."[11] A defense organization receives inputs from the environment and transforms this input into defense capability. Gelhausen offered a congruence model for defense organizations in his thesis. Basically a congruence model says "Other things being equal, the greater the total degree of congruence or fit between the various components, the more effective will be the organization."[12] In other words, the defense organization is a set of inputs. Manpower is only one of the inputs. The relationship among the inputs provide a model for the defense mission.

D.   SUMMARY

One of the responsibilities of the states is to provide a safe security environment for its members. To achieve this goal, national resources must be used wisely. Security is a two-edged sword. It can drain the nation's prosperity, as in the case of the former Soviet Union, or it can serve to protect the nation's interests. With the advent of scientific management in the 20th century, every sector adapts new management skills to maximize their benefits. The ultimate goal of the private sector is to maximize profit. In many sectors the main objective is to minimize the cost. However, in the defense sector, no criteria to measure the best defense exists.

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[11] Nadler, David A. and Tushman Michael L., Organization, Congruence and Effectiveness.

[12] Ibid,p.101

8

Environment/Context

Political
1. Parliament
2. Executive Branch

Economic
1. Unemployment Rate
2. Military Wage / Civilian wage
3. Gross National Product per Capita

Social
1. Public Opinion
2. Interests Group

Technological
1. New Weapon Systems
2. Information Technology

Key Success Factors
1. Determine the Enemy
2. Make a Position-by-Position Analysis

Direction Setting
1. Is draft efficient?
2. Is there any alternative to draft?

Design Factors

Tasks
1. Find the Overmanned Positions

People
1. Officers
2. Enlisted
3. Civilian

Force Structure
1. Draft vs. Volunteer
2. Active Force/Reserve Force

Technology
1. Modernization level

Process and Subsystems
1. Recruitment
2. Length of Service
3. Training

Culture
1. Highly Hierarchical
2. Loyalty to the Command Chain
3. Emphasize on the Incremental Change

Outcome
1. Ready to Fight Force
2. Maintain Readiness
3. Have the Deterrence Ability
4. Mission Success

Outputs
1. Satisfactory Accession
2. High Quality Personnel
3. Less Training and Equipment Maintenance Costs
4. Increased Personal Morale

Figure 3.   Congruence Approach to Defense.

The draft versus an all-voluntary force has been discussed in many countries since the end of World War II. The draft system is credited for its low budget costs. However, it is not often acknowledged that the draft system has more hidden costs that can offset any benefit. These hidden costs generally are a type of tax. The difference between the amount a person is earning in a civilian job and when drafted is a kind of tax which will be analyzed in Chapter II in more detail. This has never been shown in budgetary expenditures. Technological developments make it sensible for the forces to substitute capital for labor. Most of the new weapon systems require not less but more qualified

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personnel. Countries end up with a small sized force by not losing any efficiency because of high quality personnel.

In addition to the tax, there are other social costs associated with the draft system. Conscription greatly disrupts a person's life. When considering that nearly 40 percent of the Turkish work force is still working in agriculture, the absence of a man would undermine many a family's life. Increasingly, many people are searching for ways to avoid service. In some cases, they damage themselves physically, such as by cutting their fingers, and in some cases by bribing government officials. In the last twenty years, the public has learned that many rich people, or those who are related to officials, do not serve. Therefore, this sacred military service loses credibility in the public eye.

The aim of this study is not to support any kind of military system. Rather, it is to find out whether an all-volunteer force (AVF) would be an alternative to conscription by analyzing the current defense organization in Turkey and using the American experience on an AVF. This study is more about cost-benefit analysis. However, it is also a fact that any manpower system has political and social dimensions as well as economic ones.[13] The main focus would be to answer what consequences "the wrong man in uniform" has on a nation's defense capability and resources.

A country's geopolitical position is a good indicator of its military systems. Cohen states that, although rough, "...perhaps the best predictors of a country's system of military service are the length of its land borders with potentially hostile neighbors and the size of its population relative to that of its neighbors...."[14]. Although, many studies

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[13] Clausewitz says that "war is a continuation of politics by other means" in his classical book.

[14] Cohen, Eliot A., Citizens and Soldiers, Cornell University Press, (1985), p. 25.

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have found that there is little correlation between a country's economic wealth and its reliance on conscription, the successful implementation of an AVF depends on the amount of resources a country is willing to devote to its defense.[15]

Turkey successfully stopped terrorist activities in the southeastern part of the country. Now it is time to evaluate the costs and benefits of the current force structure. Every country has reorganized its defense formation after the end of Cold War. The decision to use an AVF should be based on scientific research, which would disclose the "defense holes" even if the current structure continues to be used.

To summarize, the defense department is the major budget expenditure and employer in the country. Any change in manpower system will have consequences beyond the defense.

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[15] Eliot Cohen and Haltiner support this hypothesis in their studies.

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II.   THE ANALYSIS OF DRAFT SYSTEM

A.   INTRODUCTION

Policy makers have to maximize defense capability within a given cost constraint while establishing a national defense. If the threat level in the geostrategic arena decreases, the defense planners should lower the defense costs. The cost of national defense can be better understood by considering how many resources are devoted to the military.

The criteria need to be agreed upon in order to measure the cost of defense manpower. From the government point of view, manpower costs are the costs spent by the treasury to maintain a certain level of defense, or implicitly what the taxpayers pay. This narrow definition is also called budget costs or expenditure. However, a more accurate measurement is what society pays, or in other words, what it forgoes when its productive labor is employed by the military. The second approach is called opportunity cost of military labor to the society. The opportunity cost generally matches budget costs in the civilian sector. However, when the government pays labor less than the value of it, the difference between budget costs and the cost to society becomes important. Budget costs will increase if there is an increase in the portion of the eligible pool required to serve. The opportunity cost of military manpower will be called economic cost and is analyzed further in this chapter.

In addition, the cost issue is beyond budget and economic costs. The draft forces a proportion of the society to give up their earnings in favor of the government. In a sense, an individual's foregone income is a hidden tax which can be called a conscription tax.

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Therefore, when analyzing the draft, the question to be asked is "whether the cost of our defense should be paid for by taxpayers in general or whether that cost should be imposed disproportionately on a small group of young people, particularly young men".[16]

B.   BUDGET COSTS

A simple calculation for budget costs is to multiply the average rate paid by the number of manpower. Budget costs would be lower in the draft system. In an AVF, the wage must be equal to the supply price of the last volunteer. In Figure 4, the area under w1 is the budget cost. It is clear that when the all the eligible pool has to serve, the budget costs would exceed the economic costs in an AVF. However, as the proportion of the eligible pool to serve decreases, the budget costs would decrease relative to the economic costs. The difference between the military wage and the supply curve is the economic rent to the suppliers. Then, the issue of cost becomes a procurement policy. How much economic rent would be acceptable to transfer from the public to the suppliers?[17]However, the budget costs would be less than it appears because some of the economic rent will return to the government as income taxes collected from the military personnel. As the income of military personnel increases so do the income taxes they have to pay. Cooper claims "conscription is the standard method of manpower procurement when a country maintains a very large military force relative to its population."[18]

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[16] Henderson, David R., The Draft Versus the All Volunteer force, Naval Postgraduate School publication, (1988).

[17] Cooper, p. 83.

[18] Ibid, p. 93.

C.   ECONOMIC COST

Economic cost can be interpreted as the opportunity cost to the person. Civilian earnings, including all monetary and nonmonetary earnings, are the opportunity cost. The individual's supply price is a good measure which combines the individual's civilian opportunity cost with his perception of the nonmonetary aspects of military employment.[19]

Figure 4.   Economic Cost of Military Manpower.
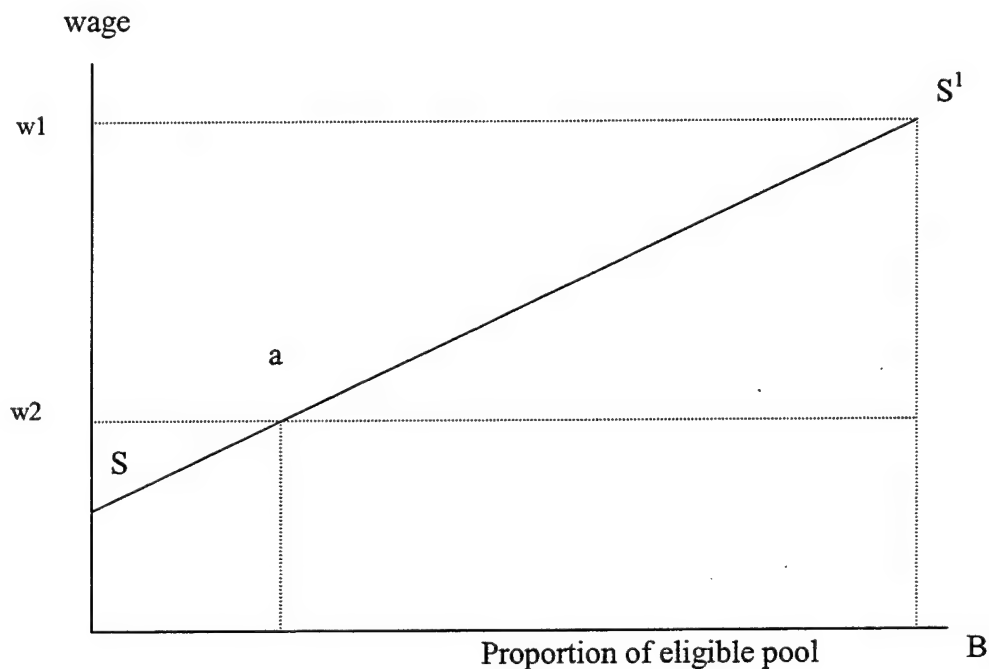
Assume that military manpower requirements is B. If the military pays a wage of w1 then voluntary individuals will fill all the requirements. However, when the military wage is below the w1, say w2, only the Sa portion of the supply curve would voluntarily join the military. The remaining accession requirements are filled by individuals who are

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[19] Ibid, p. 69.

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drafted. In the case of Turkey, military wage is nearly equal to zero. Therefore, the area below the supply curve is the economic cost of the draft system.

As the population increases or the manpower requirements decrease, the accession requirements will be less than the eligible pool. In Figure 5, the least cost can be achieved only if those who have the lowest supply price are drafted first. This is the Sb portion of the supply curve. However, this system would be rejected as being unfair. Thus, a selection system would be used, as some individuals from the bS1 portion of the supply curve would also be drafted. As a result, the economic cost of the draft would be higher unless the accession requirement is reduced.

Unlike the United States, where those on the upper portion of the supply curve would more be unlikely to serve because of the government's deferment policies to the students, fathers and others[20], in Turkey the practical economic cost is the same as the figure suggests because no exception to the draft policy exists.

D.   LABOR UTILIZATION

The previous discussion shows that budget costs are less than the economic costs of the draft. As Cooper noted, this leads to over employment of labor during the draft.[21] In the absence of the draft, the military would have to pay the economic costs to enlist personnel. When the price increases, the quantity demanded decreases. It can thus be stated that the military's demand for personnel is a downward sloping function. The cost of over employment can be calculated by Figure 6.

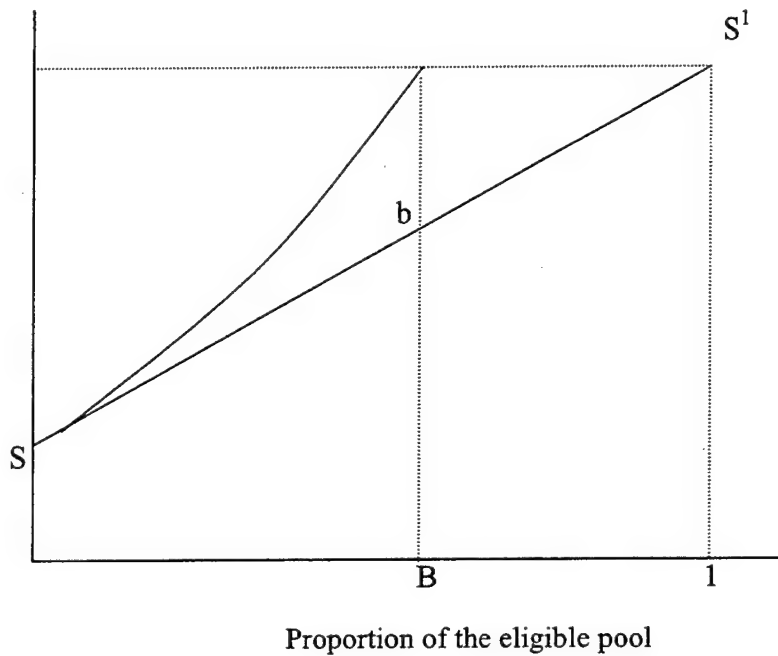[20] Ibid, p. 73.

[21] Ibid, p. 75.

wage

Proportion of the eligible pool

Figure 5.   Measuring the Economic Cost When Eligible Pool Exceeds Accession
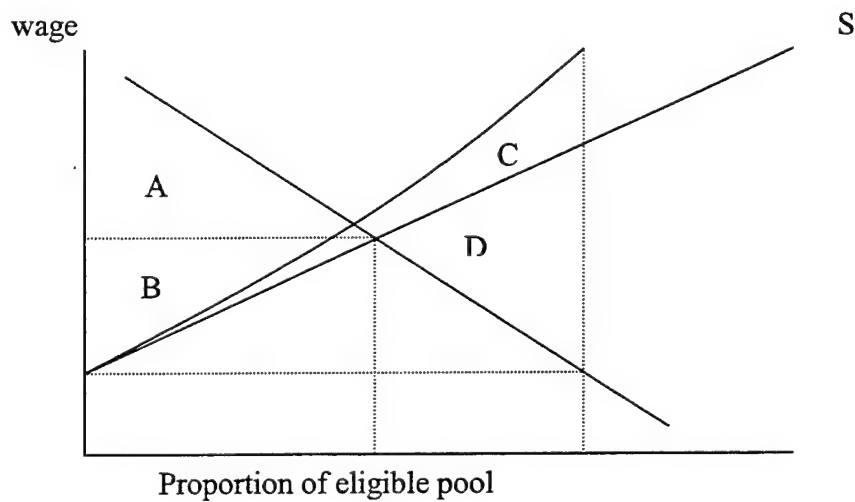Requirements.

Proportion of eligible pool

Figure 6.   Over Employment Cost of the Draft.

The optimum defense level is the intersection of supply and demand curves. At this point, there is no deadweight loss. Social gain at the market price is the sum of areas A and B. Nevertheless, when military payment is insignificant then the social gain will be reduced by the amount of C+D.

As labor becomes more expensive, the quantity of labor demanded diminishes because of the income and substitution effect. To quote Cooper:

> Substitution effect is that as manpower becomes more expensive relative to other inputs to the defense mission, the military will substitute less expensive inputs, so that the overall demand for manpower will be reduced....The income effect is that as manpower becomes more expensive, other things being equal, it becomes more expensive to maintain a given level of national defense relative to other uses of society's resources, so that less defense-hence less manpower – will be demanded.[22]

The classic 105 mm artillery team can be an example of overmanning and an ineffective usage of labor in defense establishments. The team normally consists of seven persons. However, as many artillery officers know, four experienced soldiers do better than seven draftees. Many high-ranking officers would challenge this claim by proposing that there is actually a shortage of manpower rather than overmanning. However, the fact is that their understanding of the shortage is based on the current overmanned categories. For example, in almost every sector of the military, there is a person whose job it is only to make tea and there is another one to serve the tea. The absence of these two people for this occupation does not necessarily mean a shortage of labor exists, although these occupations are always filled. Further analyses of the effectiveness of each job would

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[22] Ibid, p. 74.

show that a significant amount of active forces are not involved in the necessary military training.

E.   TURNOVER COSTS

Personnel turnover is inversely related to length of service. The draft system inherently has less time served than an AVF. There are three cost items derived from higher turnover rates

- As the turnover rate increases, so does training costs: basic military training, the cost of extra ammunition, medical expenses, intelligence expenses, paperwork expenses, the costs related with disciplinary problems
- A higher turnover rate means more trainers and trainee time per year.
- The draftees generally are ineffective in the first three months in their active duty positions. On the job training (OJT) consists of a considerable amount of training. Thus, as the turnover rate increases the more inexperienced soldiers would receive OJT.

The irony is that as the population increases to continue the universal draft, Turkey has to reduce the service time that, as shown above, would reduce the effectiveness of the military.

Permanent separations at the end of someone's service require new accessions in order to maintain the strength of the armed forces. However, new accessions must be trained before being fully productive to the military. Training includes formal draft training and on the job training .The first is given at the training posts for three months. At the end of this formal training, an individual is assigned to an operating unit to continue training on the job for an average of three more months, which changes depending on the profession, education level and job requirements. By assuming that a draftee is 100 percent effective at the end of two years, and effectiveness increases over

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time with a decreasing rate, a productivity curve for the draftees can be depicted in Figure 7.[23]

Cost

Productivity

6   12   18

Months in Service
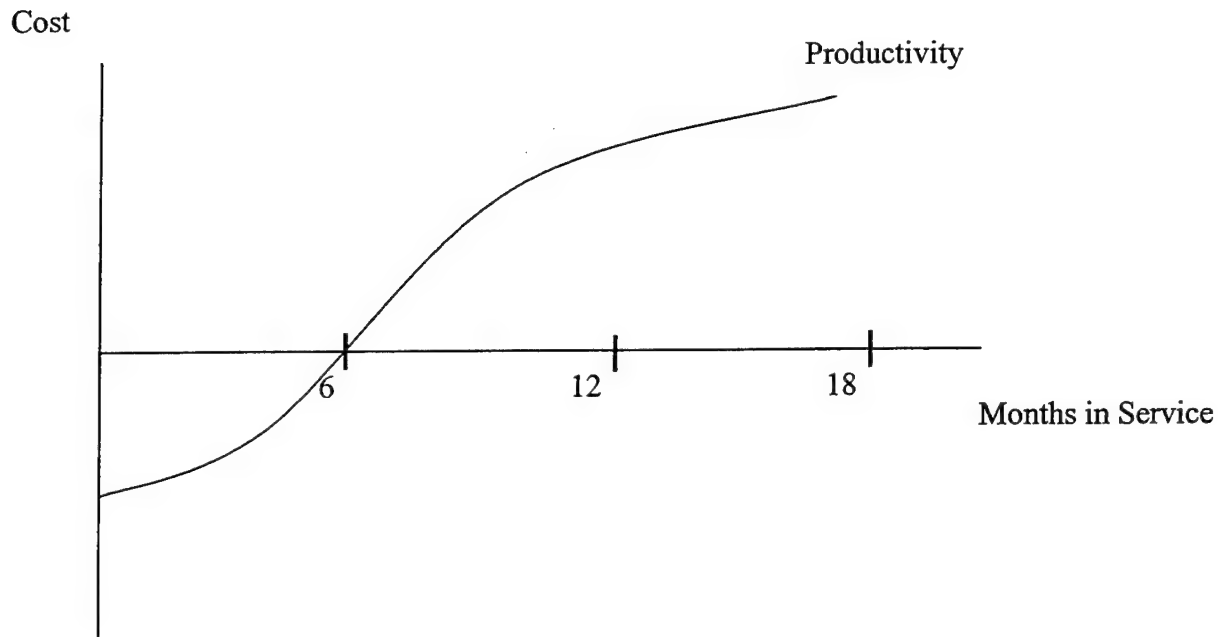
Figure 7.   Draft Productivity.

The negative area is the training costs incurred (formal and OJT training costs) until the end of the sixth month. Since all of the draftees separate at the end of eighteen months, the training costs should be included in the budget costs while evaluating an AVF alternative. When retention increases, the training costs will drop enormously.

F.   CONSCRIPTION TAX

Conscription is a tax young males have to endure. It does not appear in any government revenue and expense plans. The conscription tax is the difference between the individuals' military wage and the wage desired to join the military voluntarily (the

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[23] Adopted from the study made by Syllogistics Inc., The Differential Budget Costs of Conscription-Based Alternatives to the All-Volunteer Force, 1986, pp. 4-19.

supply price). The supply price includes civilian wages and the price of one's attitude towards the military. A proclivity to take risk will reduce the supply price and not liking military life will increase the supply price. Many people may not like being disciplined, or living in the barracks, or authoritarian rules. Cooper states that the conscription tax is a means of income redistribution. The redistribution is a result of only a percentage of young male individuals having to serve. There are two dimensions associated with this fact. The first is its intergenerational transfers of income and the second is intragenerational transfers of income.[24] The intragenerational transfer happens because only the young male population has to serve. Since the entire male population has to serve, this kind of transfer may be justified. However, the draft excludes women. The inequity of the draft in favor of women is obvious.

The most problematic form of income redistribution is intergenerational redistribution. While those who are selected to serve will carry the tax, others will avoid it. The selection process is important as well. If a random selection is used then those who are at the upper portion of the supply curve, or in other words, those whose civilian earnings are much higher will have to pay more taxes compared to the lower groups. To illustrate this, consider two individuals A's yearly civilian earnings are $5000 and B's $2000. Since the military pays no wages to draftees, A will forgo $5000 while B forgoes only $2000. The previous statement is not true in real life however. The higher a person's reservation wage, the more activities done to avoid the service. Thus, only a small ratio of the high reservation wage group will serve. There is an irony here that, on the one hand, this reduces the conscription tax, on the other hand, it causes other problems. Social

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24 Ibid. p. 86.

justice and the morale of draftees is disrupted when many of the rich people or those who have ties with effective interest groups do not serve. For instance, one of the famous pop singers in Turkey has avoided being drafted even at the expense of living abroad. If drafted, his civilian earnings would be lost to him and to society as a deadweight loss. However, as long as he avoids service, society judges him a traitor. Since high income members are unlikely to pay and low income members pay less, the middle class members pay most of the taxes disproportionately. In other words, the draft redistributes the income from poorer to wealthier.[25]

The previous definition of the conscription tax does not include the economic rent foregone and the cost of collecting the conscription tax.[26] If the government pays the market price to attract volunteers, it would have given the supply price of the last volunteer in the supply curve. The lower group will earn a rent equal to the difference between their supply prices and military wages. When conscription is used, this rent would be lost. As an example, assume the government pays $5000 and can fill its manpower requirements with this amount. If A's supply price is $2000 and B's is $5000, then A will earn a rent of $3000 while the latter earns zero.

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[25] Ibid, p. 89.

[26] Studies prepared for The President's Commission on AVF, volume II, Ch. 4, pp. 1-2.

wage

W = Market wage to attract s1 personnel
W1 = The military wage
B = Total Rent
A = Conscription tax
C = Avoidance Cost
S1 = Accession requirements

Proportion of eligible pool
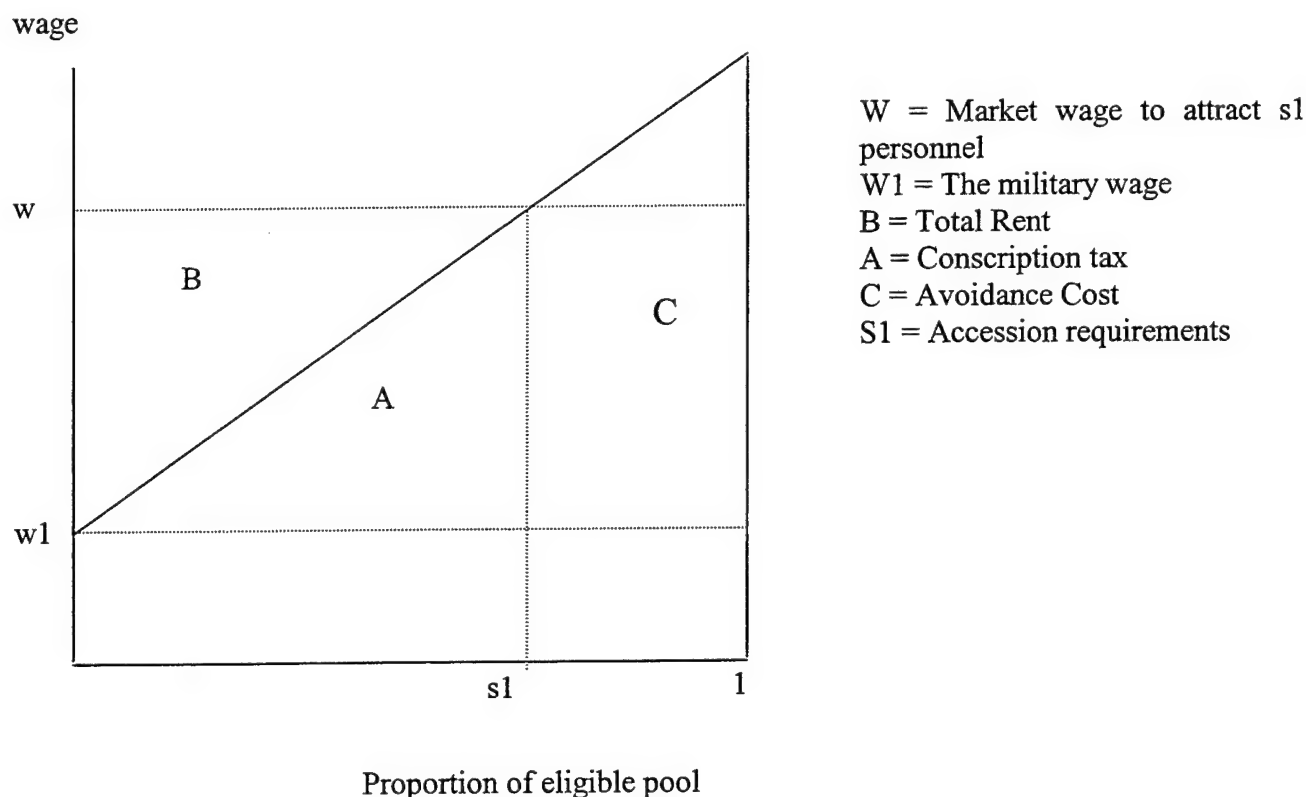
Figure 8.   Conscription Tax.

The civilian economy is deprived of its human resources as a result of the draft. Young educated people are not effectively used. Due to the overmanning effect of conscription, it is easy to discover an electric engineer serving as a tea server in the military. One extreme example is that in previous years, one Harvard graduated person died during operations against a terrorist organization. Like, the pop singer, this Harvard man would definitely have served his country better in the civilian economy rather than being forced to serve in the military.

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By borrowing the formulas from the studies prepared for the president's commission on AVF, a model for conscription tax will be constructed. Assume that individuals try to maximize their expected income (y^*)[27].

Then their expected income will be the sum of

- The probability of not serving times their supply price less the cost to avoid the draft

- And the probability of having to serve times military wages less the cost they incurred to avoid the draft

$$y^* = (1-p)(w-c) + p(1-c) \tag{1}$$

where

p = the probability of serving

w = supply price(equal to the alternative civilian earnings)

c = the costs incurred to avoid being drafted

The military wage is equal to unity for simplicity in the calculations.

If the equation is rearranged, then

$$y^* = w-c-pw + p \tag{2}$$

An individual can change the expected income by controlling c. Thus, y is a function of c. P is also related to c, since the probability of being drafted depends on the cost one is willing to incur.[28]

By differentiating y^* with respect to c, the optimum income can be calculated for the individual whose supply price is higher than the military wage.

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[27] Ibid, Ch. 4, pp. 1-7.

[28] Cooper, p. 97.

$$\frac{\partial y}{\partial c} = \frac{\partial p}{\partial c}(1-w) - 1 \tag{3}$$

Making the equation equal zero:

$$\frac{\partial p}{\partial c} = \frac{1}{1-w} \tag{4}$$

A plausible functional form for p(c) is[29]:

$$p = e^{-\beta c}, \beta > 0 \tag{5}$$

where β equals a variable controlled by the government that can affect the degree of success for an individual who incurs draft avoidance costs. Therefore, if the government allows more draft deferments then β would be larger. Using Equation 5

$$\frac{\partial p}{\partial c} = -\beta \, e^{-\beta c} = -\beta p \tag{6}$$

by incorporating Equation 6 with Equation 4:

$$p = \frac{1}{\beta(w-1)} \tag{7}$$

This condition cannot be satisfied for $w < (1+\beta)/\beta$ since it would cause p>1. From Sjaastad and Hansen[30]

> The appropriate interpretation of cases where Equation 7 implies p>1 is that of a corner solution; persons who cannot satisfy condition Equation 7 are those for whom the gains associated with reducing the probability of induction are so small that no expenditure to do is justified. These persons will simply permit themselves to become drafted, or they may even volunteer but they would not do so in the absence of conscription. Individuals able to satisfy Equation 7 enter the military only as draftees.

By making p equal to 1, the following is obtained:

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[29] Offered by Sjaastad and Hansen in the study prepared for The President's Commission on AVF

[30] Studies prepared for The President's Commission on an AVF volume II, Ch. 4, pp. 1-7.

$$w^* = 1+1/\beta \tag{8}$$

The above equation reveals that the individual whose supply price is above w*, or those on the supply curve above point A, would engage in avoiding the draft and would join the military as a draftee only if it was not possible to avoid being drafted.

Individuals up to point A in Figure 9 are either true volunteers who like military life and join the military even if the military pay is significant, or draft-motivated volunteers, who do not want to incur costs to avoid the draft.

wage

$1+1/\beta$ | D .... A .... F

C | B | E

1

Eligible Manpower Pool
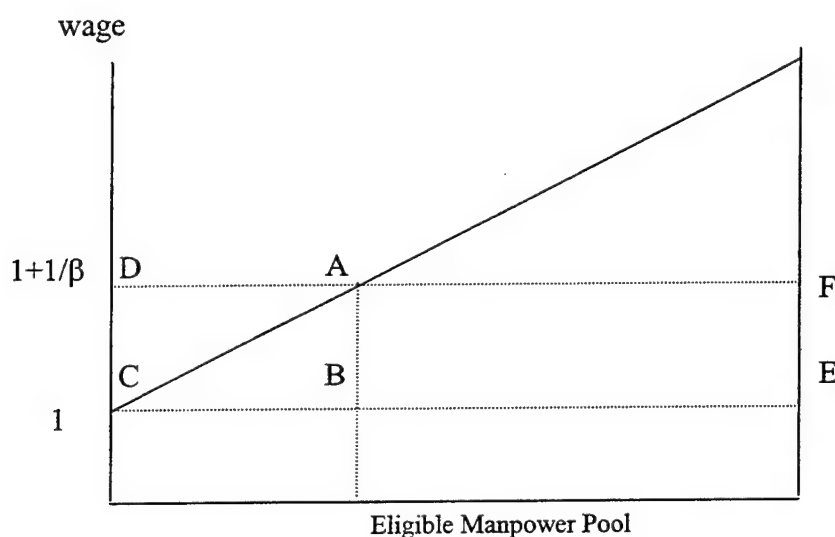
Figure 9.   Conscription Tax.

In the previous figure, ABC is the conscription tax in a narrow sense. A truer conscription tax will include the foregone rent (ACD) and cost of collecting the conscription tax (ABEF).

The avoidance costs spent by any individual can be defined by making Equation 5 equal to Equation 7

$$p=e^{-mc} = \frac{1}{\beta(w-1)} \qquad \text{if the equation is rewritten } e^{mc} =\beta(w-1) \quad \text{for } w>w^*$$

By taking logarithms

$$c = \frac{1}{\beta}[\ln \beta + \ln(w-1)] \qquad (9)$$

Total costs incurred to avoid the draft are:

Costs = from S_0 to 1 integral c [w(s)] d(s) where w(s) is the supply price

G. MANPOWER MANAGEMENT

In a draft system, one key goal is to preserve equity among the draftees. There is no compensation between a highly skilled productive draftee and an ineffective one. The lack of compensation often discourages skilled labor from undertaking additional responsibilities and generally, there is a tendency to avoid the work. From the viewpoint of a draftee, happiness occurs when avoiding performing a given duty, or doing it with less effort, since nothing is received for what is done and there is no difference between being successful or not being successful. Even worse, being successful means that new duties will be assigned. Draftees perceive that they do not contribute to the goals of the defense organization. The gap between the goals of a draftee and the defense organization is so wide that often supervision is required to accomplish the defense mission. The goal of a draftee is to complete the term as soon as possible with the least effort while the organization's goal is to achieve a certain level of defense by using its inputs. It would not be an exaggeration to call this problem unavoidable draft illness. The result of draft illness is too costly. Many equipment maintenance and mental costs can be traced back to the lack interest by an individual.

Another problem that the draft causes is the inefficiency in the use of labor. The military commanders often do not consider management principles because of cheap and ever ready labor. Defense can be separated into two broad categories of capital and labor.

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When the relative price of labor to capital increases, capital must be substituted for labor. However, since the actual cost of labor is not reflected in a draft environment, the capital labor ratio does not change. If the cost of labor were reflected, the amount of capital used would increase and an effective use of labor would ensue.

H.   QUALITY OF ENLISTEES

There is a high correlation between personnel quality and defense outcome. In a study carried out during the Korean conflict, it has been noted that "successful fighters tended to be more intelligent, healthier, more socially mature and emotionally stable, and more rapid and accurate in performing manual and physical tasks. Conversely, those who were low in intelligence tended to make poor fighters."[31] Advanced weaponry systems demand high quality operators in today's warfare. The infantryman approach of the past is no longer valid. In the battlefield, as seen in the last Gulf War, a small team or a unique weapon system may have an operational capability. Quality consists of mental capability, attitude and morale, and experience. However, to measure the quality, quantitative data is needed. One way is to establish a qualification test to categorize the personnel according to mental capabilities. The current structure of the Armed Forces categorizes the draftees according to education level, but research shows that qualification tests are more significantly related to skill abilities than to education level.[32] The experience level of personnel will evidently be higher in a volunteer army. Although it is not justified, it can be proposed that a draftee cannot be fully experienced and effective even at the end of

[31] Egbert, Robert L., T. Meeland, V. B. Clive, E. W. Forgy, M. W. Spickler, and C. Brown, Fighter1:An Analysis of Combat Fighters and Non Fighters, HumRRO Tech. Report 44 (Washington D.C. 1957) in Marlowe, David H., The Manning of the Force: The AVF and the Draft.

[32] Marlowe, David H., The Manning of the Force: The AVF and the Draft in Conscripts and Volunteers, Rowman & Allanheld Publishers, (1983).

eighteen months. Four years or longer will fully exploit personnel abilities. However, this cannot be applied in a draft, because no one would serve for such a long period.

I.   READINESS OF FORCES

The term readiness means "the ability of forces, units, weapons systems, and equipment to deliver the outputs for which they were designed"[33] Implicitly, readiness is to have the capability to engage in a military action including the deployment of forces in a reasonable amount of time that will be able to protect national interests. Readiness has its own cost. In peacetime, unnecessary mobilization of forces will exhaust national resources. Therefore, there must be a downsizing of the military in a post-cold war world situation. A Total Force Policy would be a good start in evaluating the readiness of the military. Defense capability should be measured in terms of not only active forces but also reserve, civilian and allied forces.[34] Active forces are considered to have the highest readiness. Thus, the problem involves the readiness of reserve forces. The mobilization of reserve forces depends on three factors:[35]

- Missions: The difficulty of the mission determines the preparation time for the reserves
- Wartime Performance Objectives: Higher proficiency goals require more preparation.
- Peacetime Activities and Resources: The degree of peacetime training and availability of training units affect mobilization

The Turkish military sustains a relatively high amount of active forces due to the problems in Cyprus and terrorism. Because terrorism was stopped by the successful operations of the military, a downsizing of active forces will not risk much of a loss in

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[33] Went, Joseph J., The Readiness Challenge, in Professionals on the Front Line edited by J. Eric Fredland, C. L. Gilroy, R .L .Little, and W. S. Sellman, Brassey's (Washington, 1996).

[34] Thie, Harry J. and B. D. Rostker, Structure and Readiness of Future Active And Reserve Forces, in Professionals on the Front Line.

[35] Ibid, p. 149.

national defense. A recent paper reveals that, although throughout history, the accession requirements of the armed forces were hardly achieved, the increase in the eligible pool, as a result of an increase in the population, provided enough manpower. However, the policy of the draft for the entire eligible pool continues. Sixty thousand draftees were assigned each year in addition to the accession requirements.

Training and maintaining the operability of equipment can increase the readiness of the active forces. In the current system, the availability of training units and the draftee's desire to learn military skills is less because these skills will most probably not be used in the civilian world.

J.   CHAPTER SUMMARY

This chapter focused on the models for the costs of the draft.. As the models show, economic costs would be significantly higher for conscription. Early American studies found that a transition to an AVF might result in cost savings which is contrary to the common point of view. Traditional values, such as commitment to duty, honor and country, do not necessarily justify the conscription. The AVF is widely criticized for being seen as a mercenary force. However, the AVF experience in many countries has proven the military is joined both because of financial incentives and a perception of the aforementioned values.

New technology and population growth is a negative factor for the draft. To quote Gelhausen, "the introduction of advanced weapon systems would lead to sufficient substitution of capital for labor, enabling a given task to be performed with fewer and

less-skilled people."[36] While an increase in population will reduce the ratio of those conscripted into the eligible pool, this causes social unfairness against draftees.

In addition to the economic costs, the quality pillar of manpower favors an AVF. As Cooper noted, "the relative contribution of any given individual to defense is a function of his experience..."[37] Under this assumption, by relying on more experienced personnel, the military can reduce total force size while maintaining capability.

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[36] Gelhausen, Volker, The Effects of Economic, Military, Political and Social Factors on the Successful Implementation of an AVF, Naval Postgraduate School (1998), p. 60.

[37] Cooper, p. 13.

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III. ALL-VOLUNTEER FORCE

A. INTRODUCTION

An alternative to conscription is to fill all the accession requirements with volunteers. Transition to an all-volunteer force is not merely a military manpower issue; it has long-term social and economic consequences. It is not surprising that in the U.S., the future of an AVF was debated until the Gulf War. However, using an AVF in a war demonstrated its combat effectiveness.

There are two concerns about an AVF: the cost of sustaining an all-volunteer force and whether it would be possible to attract sufficient manpower during a crisis. Studies generally favor the AVF on a cost basis. Although budget costs would be higher in an AVF, the economic costs are lower depending on the size of the force. The second concern requires the effective use of market tools. In an emergency, by increasing the level of military compensation, the enlistment rate can be increased. An alternative policy is to establish a standby draft. This alternative can be costly in economic terms but it will make the budget cost in a crisis lower.

An increasing population in Turkey may cause an AVF to be used. The ratio of accession to an eligible population base is decreasing. Therefore, in the near future, Turkey will find itself in a situation where only a small percentage of the population has to serve. The deferment policies cannot prevent selected service. As noted before, the fact that the draft became increasingly selective led to concern for fairness, which in turn led people to favor ending the draft in the U.S.

In this chapter, the quality, demand, supply and cost of the AVF are analyzed.

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B.   QUALITY OF ENLISTEES

The Armed Forces demand more qualified people as military technology becomes more complex. A high quality person will learn quickly, will do the job well and will not have as many disciplinary problems as a low quality peer. However, the price of the former is much higher than of the latter. Measuring quality is not easy. Mental aptitude tests are the most commonly used ways to measure quality. The U.S. military uses four levels of mental categories. Category I consists of people who score the highest on the tests and category IV consists of the lowest group.

The Gates commission's studies showed that there is some empirical relation between trainability, the attrition rate and disciplinary problems of enlistees on the one hand and their mental category on the other[38]. Category IV people require more basic training, have a higher attrition rate and cause more disciplinary problems than the other groups. On the other hand, job productivity cannot be explained by mental aptitude alone. To understand the quality aspect of enlistees, educational attainment should be focused on as well. Cooper states that educational level is the decisive factor in productivity. A category IV high school graduate is more productive than a non high school category I counterpart. [39] Moreover, not all of the jobs require high quality people. In some jobs, the use of category IV people is more cost effective.

The AVF has provided a high quality force that has not been achieved before in the U.S. military. More than 90 percent of the enlistees are high school graduates and 60

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[38] Studies prepared for The President's Commission on AVF, volume I, Study II.

[39] Cooper, p. 139.

percent scored above average on the mental qualification test.[40] In fact, a conscription based alternative would end up in low quality category because the overall quality of the public is less than the quality of an AVF.

The demand for high quality personnel is increasing because of the movement towards more noncombat areas and effective use of new weapon systems. After World War II, a steady change has occurred in the internal structure of the armed forces. While combat requirements are contracting, the combat support and combat service support functions are expanding.[41] The noncombat occupations increasingly demand high quality personnel such as computer specialists and electricians.

There is a high correlation between the quality of personnel and fully exploiting new technology. General Depuy provides a useful model to analyze the performance of the new weapon systems.[42] According to Depuy, system performance (P_s) is the product of equipment performance(P_e) and human performance(P_h).

Thus,

$P_s = P_e * P_h$

In Figure 10, the relationship between P_e and P_h is depicted.

[40] Eitelberg, Mark J., The All –Volunteer Force After Twenty Years in the All-Volunteer Force After a Decade, ed. by William Bowman, Roger Little and G. Thomas Sicilia, Pergamon-Brassey's, (1996).

[41] Depuy, William E., Technology and Manpower: Army Perspective in the All-Volunteer Force After a Decade ed. by William Bowman, Roger Little and G. Thomas Sicilia, Pergamon-Brassey's, (1986).

[42] Ibid. p. 131.
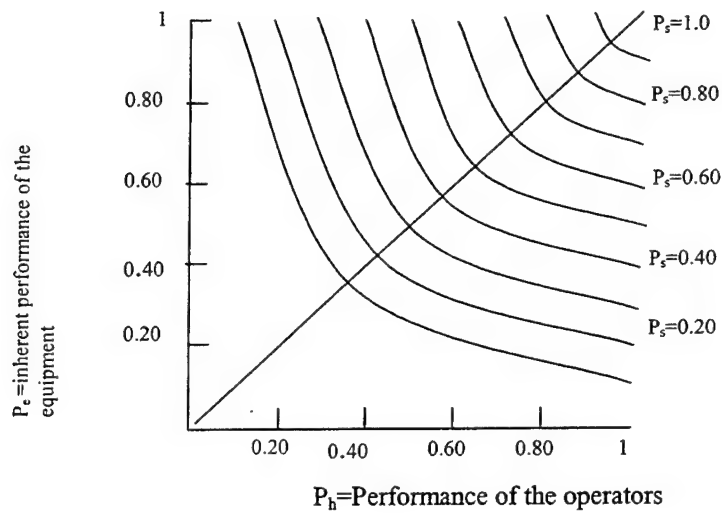
Figure 10.   Weapon System Performance.

Human performance is a driver given that equipment performance is fixed. For example, TOW weapon systems require a 90 percent performance "in most of the war game simulations."

Make P_e = 0.90. To achieve P_s=0.90, P_h must be equal to 1. However, even an average performance of category I people is below 1. Thus, there is always a performance gap that must be exploited. For example if we assume average P_h of category I people equal to 0.75 then

P_s=0.75*0.90=0.675

There will be 0.225 amount of P_s that can be filled by increasing P_h. If the military uses low quality personnel, the gap will be much wider.

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C.   THE COST OF THE AVF

The measurement of budget and economic costs is explained in detail in Chapter II. To summarize, when evaluating a particular policy budget, costs are generally taken into account. However, a more realistic approach requires what society foregoes for that particular policy. In other words, the economic costs must be considered in any debate about manpower planning. If the cost savings resulting from improved manpower utilization in an AVF can be calculated correctly, the cost effectiveness of the AVF would be realized. In the U.S. experience, the implementation of an AVF resulted in budget savings of $2 billion.[43] In addition; a costing effort should include the future costs and savings of a program. In other words, it would be misleading only to measure incurred costs but not to measure the costs or savings that will be incurred in the future. For example, future retirement benefits of the enlistees and savings from training activities should be considered.

The cost items for an AVF can be listed in three categories. The list was originally used by the U.S. General Accounting Office to determine the AVF costs by using an incremental approach:[44]

1.   Premilitary Service Costs

(a)   Recruiting

(1)   Operations

(2)   Advertising

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[43] Cooper, p. 258.

[44] Additional Cost of The All-Volunteer Force, a Report to the Congress, GAO, (1978).

   (b) Enlistments

      (1) Incentives: Nonmonetary and bonuses

      (2) Length of Service related costs

      (3) Enlistment Standard related costs

2. Military Service Costs

  (a) Compensation and Benefits

     (1) Basic Pay

     (2) Monetary incentives and bonuses

     (3) Tax advantages and privileges

     (4) Health care costs

  (b) Development

      (1) Training and education related costs

      (2) Attrition costs

      (3) Assignment costs

      (4) Civilian Substitution for military personnel

   (c) Management

      (1) Living Conditions: Bachelor and family housing

3. Postmilitary Service Costs

  (a) Retirement pay

  (b) Separation pay

        (c)   Health benefits

        (d)   Privileges

D.   RESOURCE ALLOCATION IN AN AVF

Resource allocation is the distribution of defense resources such as equipment and manpower among the various defense missions. The allocation of these resources can be in a variety of forms. Each combination has costs associated with its use.[45] Defense planners should find the most cost-effective alternative.

Cooper states "the optimum allocation of military resources among specific inputs is then a function of the relative costs of these inputs."[46] Considering labor and capital as the main inputs to defense missions, a two-factor production function of labor and capital can be written.

$$Q=f(K_i, L_i) \tag{10}$$

Where q = amount of defense output

K = amount of capital in the ith mission

L = amount of labor in the ith mission

As the above formula shows, many alternatives can yield the same defense output. When the budget constraint is included in the model, the optimum allocation of the resources is found.

$$C=P_K*K+P_L*L \tag{11}$$

Where C = the cost of the mission

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[45] Cooper, p. 269.

[46] Cooper, p. 277.

P_K = the price of capital

P_L = the price of labor

Optimum allocation of the resources would occur when the marginal products of the labor and capital are equal to the ratio of their costs.

$$\frac{MP_L}{MP_K} = \frac{P_L}{P_K} \tag{12}$$

The ratio of marginal products is also called the technical rate of substitution of capital for labor. Marginal products are a decreasing function of the amount of labor and capital. In other words, as the amount of capital (labor) increases (decreases) the marginal product of capital (labor) decreases (increases). Thus, if the relative cost of labor increases, the budget line will shift from B_1 to B_2 which results in an increase in the use of capital. Figure 11 depicts the relationship between the budget line and isoquant (Q).
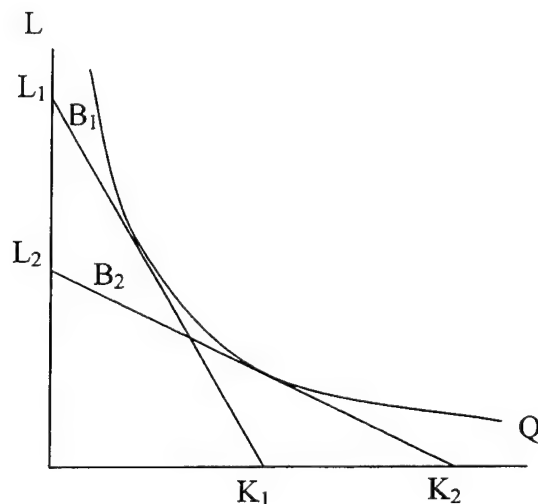

Figure 11.   The Military Production Function.

In an all-volunteer environment, the relative cost of labor to capital increases. Thus, the military should search for opportunities to substitute capital for labor.

Especially in the labor-intensive sections, such as administration and support areas, this substitution will result in huge cost savings.

E.   CIVILIAN SUBSTITUTION

Defense organization can reduce manpower costs by substituting civilian labor for military personnel in many occupations. The underlying assumption is that civilian personnel are less costly than their military counterparts. The military accepts unskilled personnel from a limited age group, and after extensive training, these personnel can be used effectively. Thus, entry to the system occurs at the bottom level. Without allowing lateral input, the military draws its career personnel from inside the system. The training and development costs of unskilled personnel are not relevant for civilians. Those costs are under their direct responsibility. The military can find optimal civilians in a market environment. Some researchers believe that the productivity of civilians is higher than that of military personnel since military personnel often have to spend some time doing military related duties that are not directly related to the position assignment.[47] Not all studies support the cost effectiveness of civilian substitution.[48] In some occupations, civilians demand higher compensation than their military counterparts. But in the positions where a civilian's productivity is higher than that of a uniformed person, cost savings can be incurred by substituting fewer civilians for more military personnel, rather than on a one-to-one basis.

The identification of criteria for substitution is important to maintain the readiness of the forces. The following occupations belong to uniformed personnel:

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[47] Albro, Ames S., Civilian Substitution, in the Studies Prepared for the President's Commission on an All-Volunteer Armed Force.

[48] Cooper, p. 296.

- Combat related occupations
- Positions that require military personnel because of the skills involved
- Command and control elements
- Positions that require frequent service rotations, such as assignment to undesirable regions

Civilians can fill the remaining occupations. However, some constraints on civilian manpower, such as mobilization, can offset the gains by a "man-for-man" substitution. Civilianization includes direct hire or contract hires. Although the cost savings from the use of direct hires is not clear, the use of contract hires will result in greater cost savings because "the civilian contractors can take advantage of local labor market conditions."[49]

F.   SUMMARY

The success of the AVF is closely related to military manpower policies. The following areas can reduce the burden on the budget:

- Relaxation of the standards for physical and mental capabilities when necessary. Low standard enlistees can fill some occupations.
- The use of women when possible
- The use of civilians in noncombat positions
- Improvement to retention/reenlistment management.
- Establishing a variety of enlistment and reenlistment periods and options.[50]

More cost savings in an AVF will be realized from the substitution of civilians for military personnel, capital for labor and career personnel for junior personnel.

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[49] Cooper, p. 301.

[50] U.S General Accounting , Recruiting for the All–Volunteer Force, (1977).

IV. CONSIDERATIONS ABOUT AN AVF

A. INTRODUCTION

The lack of civilian interests in the military limits the study of an AVF in Turkey. Civilians generally feel that military personnel can better solve military issues. However, in today's environment, every agency needs independent studies that will help to find the most efficient policies. The objections to a particular military policy should not be understood as threatening to national security. In the absence of scientific analysis, nobody can evaluate the outcome of a particular policy. The civilian and military officials should encourage the universities, research agencies, and academicians to study national defense.

From personnel interviews at Turkish military headquarters, this researcher concluded that senior officers favored an AVF. Turkish military personnel see the AVF as a professional armed force. However, as explained in previous chapters, a professional armed force does not mean an AVF or any other military system. The support for an AVF in Turkey is not based on a scientific background. Many senior officers claim, simply, "An AVF is inevitable in the future for Turkey."

In this chapter, the objections to an AVF in Turkey and in the countries that have already changed its military system from conscription to an AVF and some other alternatives to the conscription system will be discussed.

B.   ARGUMENTS AGAINST AN AVF

The objections against an AVF resulted from the unquestioned acceptance of the draft system as the best military system rather than from scientific research. For example, in one of the studies about the case for the draft, Lacy claims that the only benefit of the all-volunteer force in the U.S. has been its avoidance of compulsion in peacetime.[51] Nevertheless, the critics of AVF believe that the losses outweigh the benefits in other respects:

- in security: a defense manpower procurement policy is tied to the whims of the labor marketplace
- in military dependability: at the time of an emergency, many are not confident that additional manpower can be provided quickly enough to be militarily effective or even usable

However, none of the above assumptions happened to be true in the U.S. The late 1970s were the worst years in the recruitment area. Especially the U.S army could not meet its accession requirements. The reason was relatively lower military compensation. After the pay increases, all services filled their requirements. Furthermore, the public's justification for using military force is an important motivation for the individuals to enlist. In contrast to World War II, the volunteer enlistments during the Vietnam War were very low. Similarly, when the Turkish government explained the importance of fighting terrorists, the public saw the fight as a source of pride and dignity.

Mainly, the objections can be classified into five categories:

- The mobilization and problem of reserved forces
- The cost of an AVF
- The social representation problem

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[51] Lacy, James L., The Case for Conscription, in Military Service in the United States, edited by General Brent Scowcroft, Prentice Hall, (1982).

- An AVF would be a mercenary force
- Civilian respect will erode

1.   Reserve Forces

A detailed analysis of the reserved forces under an AVF is beyond the scope of this study. The reserved forces are used to supplement the active force's combat losses and to meet the personnel requirements of the military in a national emergency. Under the current system, the draftees are obliged to be on call until the age of 40. The reserves attend two weeks of active duty training each year. The underlying assumption is that the draft supplies trained personnel to the military in an emergency. So, short training times will be enough to refresh the knowledge of the personnel. However, the validity of the above assumption has not yet been tested.

There are two alternatives to the current reserve structure under an AVF .The first is to draft civilians who are not active duty. The second is to recruit voluntarily. The first alternative is mandatory service for civilians. Those who complete their service can be obligated to serve for a certain period in the reserved forces. Prior service personnel are valuable because they are already trained and experienced. The first alternative would result in a deadweight loss but not as much as a draft would cause. A voluntary reserve force's main concern, like active forces, will be filling its accession requirements in a competitive market. The survivability of a voluntary draft depends on prior service reenlistments and enlistments from civilians.

2.   The Cost of an AVF

As mentioned earlier, the visible cost of an AVF force is misleading, since the budget cost does not reflect the real social cost of the AVF. Many draft related costs are hard to measure. Indiscipline related costs are clearly more costly. The downsizing of

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active forces is vital to the success of an AVF. The military needs new management skills. Moreover, the cost depends on the amount of rent society wants to give to enlistees. The selection of measurement criteria can change the outcome. For example, if force strength is held constant, an AVF would seem costly. However, the correct measurement must be to hold the force effectiveness constant based on the alternatives. A study made by Syllogistics Inc. showed that

> ...as a method of personnel procurement, an active force draft could be quiet costly compared to today's AVF.... Perhaps the greatest advantage of the AVF is the economic efficiency that market pricing of labor resources imposes on the military.[52]

3. The Social Representation Problem

The supporters of this argument believe that an AVF would not represent all society. More poor people would want to enlist when they see military pay as more attractive. Though it is not relevant in Turkey's case, other countries are fearful of having enlistees from either minority groups or poor families. The AVF experience in the U.S. shows that, although the African-American participation is high compared to their ratio in the population, the composition of the force has been similar to the draft, contrary to Mosko's argument.[53] The decision to enlist depends on the expected income of the individuals. Any quota to prevent people from enlisting will result in inefficiencies. Considering the fact that high-income individuals would incur draft avoidance costs more than others, the socioeconomic composition of an AVF would not be different from a draft system. To quote Gates' report:

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[52] The Differential Budget Costs of Conscription-Based Alternatives to the All-Volunteer Force, a study made by Syllogistics Inc., (1986), p.5-13

[53] Charles C. Moskos claimed that "...the combat arms especially never draw proportionately from the middle- and upper-class youth....", Social Considerations of the All-Volunteer Force in Military Service in the United States, edited by General Brent Scowcroft, Prentice Hall, (1982).

...if higher pay does make opportunities in all-volunteer force more attractive to some particular group than those in civilian life, then the appropriate course is to correct the discriminations in the civilian life- not to introduce additional discriminations against such a group....[54]

4.   An AVF Decreases Patriotism

There are no grounds for this argument. The main body of a military force is a career force that consists of volunteer personnel. To claim the voluntary army is a mercenary force would mean all the officers are mercenary because they are paid..There are many reasons to serve in the military. The wage is only one of them. Eliminating the financial penalty of the draft will not change the attitudes of people towards the military.[55] Nevertheless, what these critics forget is that an individual who is involuntarily in the military has less incentive than a volunteer to perform his or her duty.

5.   Erosion of Civilian Respect and Isolation of the Military

All the surveys show that the public puts the Military Forces first when asked "which agency do you trust most?". Public opinion is similar in most of the democratic countries. People generally think the legislative branch is corrupt and the military is the only agency doing the job well. If the military's effectiveness increases as a result of a particular policy, the society's esteem for the military would increase more. The real danger facing society-military relations is that society sooner or later does not want to accept that some people carry the defense burden while others do not. If the population growth continues at the current level, Turkey would have to use a selected service if not an AVF. The disproportionate distribution of burden under selective service was one of the main reasons to end the draft in the U.S. The AVF has nothing to do with the isolation of the military from society. The AVF changes the manning system of first timers greatly.

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[54] The Report of the President's Commission on an All-Volunteer Armed Force, p. 15.

[55] Ibid, p. 16.

It is the officer corps which affects the level of isolation. The more the officer corps is isolated from society, the more the military will be isolated from society. In fact, the source of isolation lies in the kind of benefits provided as compensation for military personnel. Government housing, commissaries and medical care in military hospitals contributes to isolation more than any other factors. However, the elimination of some of these in kind benefits may have an adverse effect on the morale of military personnel. In general, cash compensation may be a solution to the isolation problem.

C.   MILITARY SERVICE SYSTEMS

Understanding the military systems will help develop the best system needed. There are two main categories of military systems. The first is conscription-based systems and the second is volunteer-based systems. The Universal Military System and AVF were explained in the previous chapters.

1.   Conscription Based Systems

a.   *National Service*

All men are required to serve either in the military or in a government job for a certain period of time. This system is aimed at providing fairness in a country where not all of the eligible people are required to serve. Advocates of this system say, that national service brings fairness to the military, because an individual has the right to choose among military and government jobs. Thus, the military can recruit more volunteers than a draft system. However, Kester criticized this system for the inherent wrongs.[56]

- It is impractical. It is difficult to employ all the young people in the public sector.
- It is costly. The conscription tax and other costs increases in this system.

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[56] Kester, John G., The Reasons to Draft, in the All-Volunteer Force After a Decade.

b. Selected Service

The enlistees are chosen within an eligible pool by a lottery method. The selected service is a result of the draft system as the entire eligible pool exceeds the accession requirements. Only a portion of the eligible pool carries the burden of defense. It is this unfairness that compels many countries to look for other alternatives.

c. Monetary Service and Conscription

In this system, people who can afford to pay a certain amount of money can avoid conscription. The money limit can be adjusted to enable the military to meet its manpower requirements. This system lowers the budgetary cost of the conscription. However, many people believe that to put a monetary value on military service will reduce the military's esteem. Figure 12 shows the cost of a monetary service.

The area ABEF is revenue for the government and a loss for individuals. Thus, the conscription tax decreases by the amount of area ABEF.
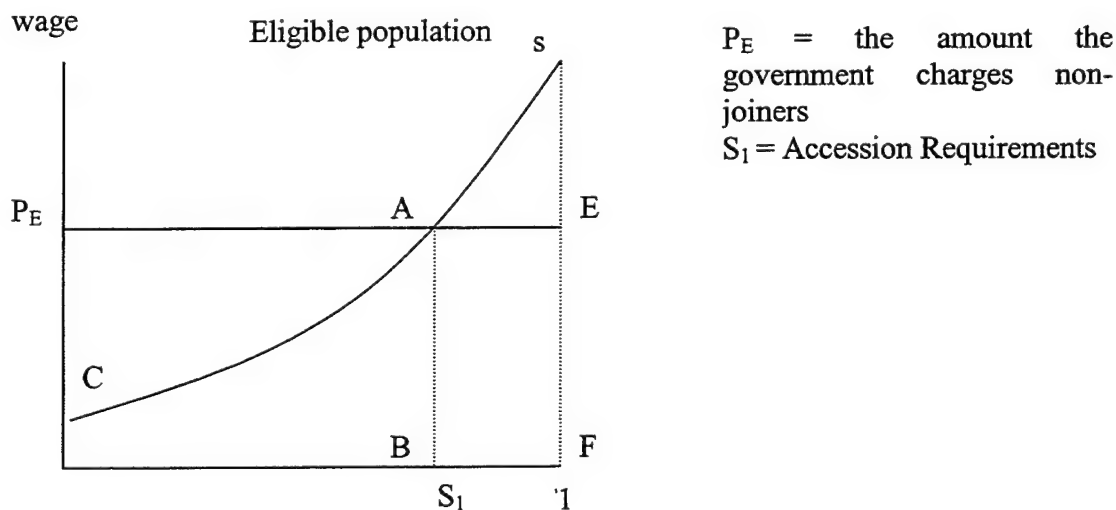

P_E = the amount the government charges non-joiners
S_1 = Accession Requirements

Figure 12.   The Cost of Monetary Military Service.

D. SUMMARY

Society and military can gain more than they lose if a careful analysis is made about the viability of an AVF in Turkey. The Turkish military has always been a supporter of a better military. History witnessed the reform actions taken by the Turkish military to maintain its power in changing environments. The key success factor for a policy change is to guarantee public support. Society's view does not change considerably as a result of a new manpower procurement system. The cadre body of the military is the same in all systems. Since the structure of the officer corps will almost certainly remain the same in an AVF, many of the objections to the AVF can be said to be groundless.

Two of the aforementioned considerations are worth considering: the future of the reserved forces and the cost of the AVF. Turkey relies on a large standing active force for its security. The manning of the reserved forces in the absence of conscription depends on the amount and structure of the reserved forces. The Turkish military should clarify its objectives about the use of reserves. Will they be used as a supplement to war losses or will they be used in a unit structure to support active forces?

If the size of the forces was not reduced, the cost of the AVF would be higher considering that individuals are paid very little for their service when drafted. However, in any case, it is obvious that the draft is an inefficient way of using national resources. As the Gates commission says

> ...the explicit cost of using military forces are underestimated, with the result that decisions to use the armed forces are made which perhaps would not be made if the true costs were known. The all-volunteer force,

by making economic and political costs explicit, should lead to more rational and democratic decisions about the use of military force.[57]

The monetary service is a good alternative to the conscription-based alternatives. If the revenue collected from those who applied for the monetary service is used for the compensation of draftees, much of the opposition can be reduced.

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[57] The Report of the President's Commission on an All-Volunteer Armed Force, p. 154.

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V. CONCLUSIONS AND RECOMMENDATIONS

In this thesis, the inefficiencies of the current manning system have been explained thoroughly. The decision to establish an alternative manpower system requires an in-depth analysis. As previously mentioned, the method of this thesis is to apply economic studies. The social dimension of an alternative system is beyond the scope of the thesis. The defense manpower system is the most costly sector of national defense, which is in turn, the most costly sector of Turkish Economy. Defense departments employ the greatest number of people in any country where security is one of the priorities. Any improvement in the manpower system will be directly reflected in defense capability and the national budget. Although decision makers cannot agree on a unique system, some management principles will increase the defense outcome in any environment.

A. MILITARY COMPENSATION

Cash compensation is more useful than in-kind compensations in many cases. Especially since the majority of the people in the military are junior personnel, in-kind benefits cannot be meaningful for junior soldiers unless they use them.

B. SUCCESS MEASUREMENT SYSTEM

Evaluation of personnel achievements must be based on quantifiable measures. Subjective measures can demoralize the personnel, and personnel goals can be put ahead of the organization's goals. Moreover, equity of the ranks should not guarantee equity in compensation. Individuals who are sacrificing more must be compensated more than their colleagues must.

C. RETENTION OF EXPERIENCED PERSONNEL

The cost of personnel increases as more experience is obtained. Therefore, the most costly separations are those of skilled personnel. Defense should place emphasis on experienced personnel.

D. THE CONDITIONS FOR AN AVF

1. Military Participation Ratio (MPR)

MPR is the ratio of drafted individuals to the entire population. The MPR is important in that it shows what percentage of society has to pay the conscription tax. As Haltiner states, the MPR is a good measure of military burden-sharing.[58] The MPR will decline as the denominator of the ratio (population level) increases. A declining MPR will leave two options for the country: first, to increase the force size, which will be costly because of unnecessary capacity; or second, to use an alternative military system.

As seen in Table 1, Turkey is standing on a threshold. In the near future, all the conditions would be favorable for a successful transition to an AVF.

2. Conscript-Volunteer Pay Ratio (CVPR)

CVR is the ratio of the conscription wage to the wage required to fill all enlistment requirements by volunteers. The budget costs for countries that have a low CVPR would increase more than that of countries that have a high ratio in transition to an AVF. After the first term pay increases in 1970, the differential budget costs of an AVF were affordable in the U.S. military.

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[58] Haltiner, Karl W., The Defined End of the Mass Army in Western Europe, in Gelhausen, Volker, The Effects of Economic, Military, Political and Social Factors on the Successful Implementation of an AVF, Naval Postgraduate School (1998).

Country	Population (millions)	Total Force	MPR %	System
USA	276	2577300	0.9	AVF
GB	59	515300	0.9	AVF
Netherlands	16	84140	0.5	AVF
Japan	127	285900	0.2	AVF
Canada	29	102400	0.4	AVF
France	59	713430	1.2	Draft
Turkey	66	988400	1.5	Draft
Germany	82	685300	0.8	Draft
Greece	11	450170	4.1	Draft
Spain	39	613950	1.6	Draft
Portugal	10	255580	2.6	Draft
Norway	4	248700	6.2	Draft

Table 1.   The Effect of MPR on Countries' Military Systems

Source: The Military Balance 2000/2001(London: Oxford university Press, 2000)

3.   Reserve Ratio

The total force concept cannot be contemplated without the reserve forces. Since the cost of maintaining reserve forces is lower than that of active forces, as the ratio of reserve forces to active forces (RR) increases, a nation can more easily implement an AVF.

E.   SUMMARY

In Chapter II, the cost of a draft system is explained. The draft causes a deadweight loss, a disproportionate distribution of tax and overmanning as a result of cheap labor.

In Chapter III, the AVF system is discussed. The AVF is inevitable in the future, as the MPR increases. The budget cost of an AVF, which is heavily criticized, is not as high as draft supporters claim.

In Chapter IV, this study addressed the arguments against an AVF and explained some other draft alternatives. In the conscript alternatives, the selective monetary system is better than the current system. It reduces the social cost of the draft.

APPENDIX A. MODELS FOR TURNOVER COSTS AND CONSCRIPTION TAX

A.   TURNOVER COSTS

The model used here is imported from O'Neill's study[59]. First, the total strength of the forces is defined.

$$S = O_E + O_S + S_T + F_T + T \tag{13}$$

Where S = Total strength of force

O_E = full effective operating force

O_S = non-effective operating sector (OJT section)

S_T = student training

F_T = training support (faculty)

T = Transient account

As O'Neill states "the force capability is directly related to the size of O_E." The other sectors contribute to defense capability by maintaining the O_E amount. Turnover costs are the result of these support sector activities.[60]

For a constant force size in the long run, the strength of each length of service category is,

$$\lambda_M = \frac{\prod_{i=0}^{M} CR_i}{\sum_{M=0}^{n} (\prod_{i=0}^{M} CR_i)} * 100 \tag{14}$$

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[59] O'Neill, Dave, Determinants of Labor Turnover Costs in the Military, Studies prepared for The President's Commission on AVF.

[60] Ibid, p. 1-4-2.

Where

CR_i = the proportion of individuals who will stay in the system to start year i+1

N = last year of service category

The denominator of Equation 14 is called retention of accessions (expected number of man years per accession (K)).

Equation 13 can be rewritten as:

S=KA or

$$S = A \sum_{M=0}^{n} (\prod_{i=0}^{M} CR_i) \qquad (15)$$

Where A = annual flow of accessions.

Equation 13 with Equation 15 equals

$$A = \frac{1}{K}(O_E + O_S + S_T + F_T + T) \qquad (16)$$

It is clear in the above equation that accession depends on the retention rate. If K is high, then accession requirements will be low.

1.   Support Sector Costs

When an individual is inducted into a service, the training command is joined where α years are spent in training. After completing formal train the individual is assigned to operating units. The time between separation from the training command and joining the operating unit is the transient time (β_A). During this time, individuals who finish service are also in a transient position, or separation transient time at (β_S). After

joining the operating unit it, will take â years to be fully effective (OJT time). This is formalized as:

$$O_S = â * b_2 * A \qquad (17)$$

$$S_T = \alpha * b_1 * A \qquad (18)$$

$$T = (\beta_A * b_1 + \beta_S) * A \qquad (19)$$

Where b_1 and b_2 are the average fractions of A who remain on active duty during OJT (equal to 1 in the draft)

The support of the trainers is assumed to change linearly depending on the number of students.

$$F_T = a + \gamma S_T \qquad (20)$$

Where a = fixed component

γ = The ratio of trainers support to the number of students

The cost of other support activities during the training and transient time can be similarly formalized.

$$V = c + \phi S \qquad (21)$$

$$Z = d + \psi_A T_A + \psi_S T_S \qquad (22)$$

Where V is the cost for other support activities during training

Z is the cost for other support activities during transient time

C and d are constants

ψ_A and ψ_S are the elasticity for T_A and T_S respectively.

By redesigning Equation 22 and substituting the latter equations, the following occurs:

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$$O_S = \frac{b_2 \hat{a}}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A b_1 + \beta_S)} * O_E \qquad (23)$$

$$S_T = \frac{b_1 \alpha}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A b_1 + \beta_S)} * O_E \qquad (24)$$

$$F_T = \frac{\gamma\alpha}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A * b_1 + \beta_S)} * O_E \qquad (25)$$

$$V = \frac{\phi\alpha}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A b_1 + \beta_S)} * O_E \qquad (26)$$

$$Z = \frac{\psi\beta_A b_1 + \psi\beta_S}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A b_1 + \beta_S)} * O_E \qquad (27)$$

$$S_T = \frac{b_1 \alpha}{K - \hat{a}b_2 - \alpha b_1 - \alpha\gamma - (\beta_A * b_1 + \beta_S)} * O_E \qquad (28)$$

For a given value of O_E, the turnover costs can be found by using the parameters

(b_1, b2,α,β,ϕ,γ,λ etc).

B.   CONSCRIPTION TAX

1.   Excess Economic Cost of the Draft

As Cooper noted,[61] the economic cost of a draft system is

$$E = N_0 \int^1 p(s)w(s)\, ds \qquad (29)$$

Where N= the number of persons in the eligible pool

W(s) = supply price of the eligible pool

P(s) = probability of serving (=1 for $w < [(1+\beta)/\beta]\, w^*$,

$= 1/(\beta(w-1))$ for $w > [(1+\beta)/\beta]\, w^*$)

and the economic cost of an AVF is

$$E = N_0 \int^B w(s)\, ds \qquad (30)$$

---

[61] Cooper, p. 99.

Where

B = proportion of the eligible pool required to serve

2. The Conscription Tax Narrow Definition

$$T = N_A \int^1 p(s)[w(s)-w^*]ds \tag{31}$$

Where A equals the proportion of the eligible pool who are true volunteers

w^* = the draft wage

$P(s)$ = probability of serving (=1 for $w<[(1+\beta)/\beta] w^*$,

$= 1/(\beta(w-1))$ for $w>[(1+\beta)/\beta] w^*$

3. The Cost of Collecting the Conscription Tax

$$C = N_{s^*} \int^1 1/\beta[\ln \beta + \ln(w(s)-w^*)]ds \tag{32}$$

Where s* equals the proportion of eligible pool who are either voluntary or motivated by the draft such that $w(s^*)=[(1+\beta)/\beta]w^*$

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APPENDIX B. MODELS FOR ENLISTMENT SUPPLY AND DEMAND

A.   ENLISTMENT SUPPLY

There are six factors that influence the supply of enlistees:

- Military pay and allowances
- Civilian wage
- Unemployment level
- The eligible population base from which the military must draw its recruits'
- Individuals tastes for military service [62]
- Enlistment standards[63]

The most important factor is the ratio of the military wage to civilian wage. The higher the wage ratio, the higher enlistment will be. The civilian wage alternatives and employment level negatively affect the decision about enlistment. If more people find jobs to fit their tastes in the civilian economy, there will be less people who will potentially enlist.

The probability of being unemployed reduces the expected civilian income and makes enlistment more attractive. Thus, the unemployment rate affects the decision to enlist.

The attitude of people towards the military is a subjective measure. The differences between civilian life and military life determine the public attitude about the

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[62] Cooper, p. 159.

[63] Nelson, Gary R., The Supply and Quality of First Term Enlistees Under the All-Volunteer Force in the All Volunteer Force After a Decade, ed. by William Bowman, Roger Little and G. Thomas Sicilia, Pergamon-Brassey's, (1986), p. 37.

military. In the military, the freedom of choice enjoyed by civilians does not exist.[64] A military person cannot quit the job when the job environment is not pleasing. Overtime work without pay, field duty, frequent moves, and ultimate stress are the characteristics of military life. To compete with civilians, the military must compensate for these disadvantages. The military can change the attitudes of people by introducing new policies.

Recruitment activities directly affect the outcome as well. These activities include advertisement and work done by recruiters. By entering the above factors in a model, a recruitment function is found:[65]

$$E/P=f[(W/C),M,R,U,T]$$

Where E = the number of enlistees

P = the population base

W = military wage

C = civilian wage

M = other tangible aspects of military employment

R = recruiting effort

U = unemployment level

T = taste for military service

Cooper states that a logistic model would explain the enlistment supply.[66]

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[64] A report to the President on the Status and Prospects of the All-Volunteer Force, (1982).

[65] Cooper, p. 160.

$$s = 1/(1 + e^{-XB}) \tag{33}$$

Where $XB = b_0 + b_1 w + b_2 r + b_3 u + v$

    S = enlisted number /population base ratio(E/P)

    b_1 = coefficient of the variables

    w = military wage/civilian wage ratio(W/C)

    r = number of recruiters/population base ratio(R/P)

    u = unemployment rate

    v = stochastic error term

    The coefficients can be found in regression analysis. With logarithms:

$$\ln \frac{s}{1-s} = b0 + b1w + b2r + b3u + v \tag{34}$$

B.   ENLISTMENT DEMAND

    The demand side of enlistment is crucial for the success of an AVF. The downsizing of the size of the force will help the AVF. Thus, the demand of enlistment depends on "the desired force strength, the losses in the service and reserve activation".

$$ES_t = ES_{t-1} + A_t - L_t + RA_t - RD_t \text{ or} \tag{35}$$

$$A_t = (ES_t - ES_{t-1}) + L_t - (RA_t - RD_t) \tag{36}$$

    Where ES_t = end strength in year t

    A_t = accession requirements in year t

    L_t = losses in year t

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[66] The Gate's commission studies showed that the fitness factor(R^2)is higher for a logit function than the other functions.

RA_t=reserve activation in year t

RD_t=reserve deactivation in year t

If Equation 35 is rewritten in terms of the size of the force size:

$$\frac{A_t}{ES_{t-1}} = \frac{ES_t - ES_{t-1}}{ES_{t-1}} - \frac{RA_t - RD_t}{ES_{t-1}} + \frac{L_t}{ES_{t-1}}$$

(37)

Or,

$a_t = es_t - nr_t + l_t$

Where a_t = accession rate

es_t = percentage change in end strength

nr_t = net reserve activation rate

l_t = loss rate(expressed as a percentage of previous year's end strength)

Some other policies can affect the accession rate as well. For example, the reliance for junior personnel versus experienced personnel, the civil substitution or and preference of non-high school category I –III people to the high school graduate category IV. These policies

Excluding force strength variation, if the attrition of the first term can be controlled, the military can reduce accession requirements considerably. As Nelson mentions, the first term attrition is costly in several ways: [67]

1. Losses may represent potentially productive trained man–years and hence a less capable force

2. Higher losses produce larger requirements for non-prior service enlistments and may require more recruiters or higher pay for recruits.

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[67] Nelson, p. 28.

3. Higher losses create additional costs for training and other turnover-related items.

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